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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/918,409	07/30/2001	Keith R. Baldwin	INSL0015	6434

26122 7590 04/19/2005

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EXAMINER

UBILES, MARIE C

ART UNIT PAPER NUMBER

2642

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/918,409	Applicant(s) BALDWIN ET AL.	
	Examiner Marie C. Ubiles	Art Unit 2642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 10, 22 and 25 is/are rejected.
- 7) ☒ Claim(s) 2-9, 11-21, 23-24 and 26-30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/21/02, 3/24/03, 7/7/03, 8/8/03</u>
<u>10/17/03</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 15-17 are objected to because of the following informalities: In claim 15, the limitation "to reduce DC" and "adding DC", in claim 16 the limitations "adding DC" and "DC amount" and in claim 17 the limitations "adding DC and "DC search" are not clear. Applicant should clarify if the recited "DC" is a value, level or threshold.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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3. Claims 1, 10, 22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kozak et al. (US 6,766,153).

Regarding claim 1, Kosak et al. discloses a method of controlling operation of a wireless communication device (as read on "signal received over ... wireless channels")(See Col. 2, lines 46-50) in a zero intermediate frequency (ZIF) architecture (as appreciated on Fig. 3, no down-conversion circuitry is in the path of received signal) including a DC feedback control loop and a gain feedback control loop (For both, see Fig. 3, elements 46-58), comprising: processing energy in a wireless medium to receive a corresponding receive signal (or input voltage V_{in} , See Fig. 3); monitoring the receive signal via a predetermined measurement window (See, for example, Col. 3, lines 9-13); detecting a changed condition in the wireless medium (See Col. 11, lines 9-12); holding the gain feedback control loop at a constant gain level after detecting the changed condition (See, for example, Col. 18, lines 51-53).

Regarding the limitation reciting "operating the DC feedback control loop in attempt to search a stable DC value for the receive signal while the gain feedback control loop is held constant", Kozak teaches that during periods of transmission of packets, the average power signal (or DC value) is approximately constant (See Col. 11, lines 1-3); this is desirable to maintain the gain of the signal between packets at a certain level in order to be able to process the signal (See Col. 1, lines 62-65).

As for claim 22, the limitations are rejected for the same reasons as claim 1, performing the recited functions during a "predetermined quiet period" reads on Kozak

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et al. teachings regarding adjusting gain during packet/noise period transition (See Col. 2, lines 11-14 and 19-26).

As for claim 10, the recited "determining if a DC threshold of the signal is exceeded", "if the DC threshold condition exceeded, holding the gain feedback...at a constant gain level" and "when the DC threshold condition of the receive signal is met...operating the gain feedback...to a predetermined power level" may be read, for example, in Kozak teachings of Col. 3, lines 6-20. Further, it would have been obvious to one of ordinary skill that if the power threshold value is exceeded the automatic gain control circuit will work to reduce such value to a predetermined fixed gain value in order to save, for example, consumed power and make the system less sensitive to noise. Additionally, the purpose of a closed loop gain system –as the one taught by Kozak et al.- is indeed to monitor power gain conditions of a signal and adjust the signal values to desired levels of operation.

As for claim 25, the limitations are rejected for the same reasons as claim 1, the recited "storing gain level" (as read on "gain values output by the mechanism can be computed a priori and stored in a table for look up during operation") and related functions is taught by Kozak in Col. 3, lines 9-19.

Allowable Subject Matter

4. Claims 2-9, 11-21, 23-24 and 26-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

No prior art was found teaching individually, or suggesting in combination, the limitations of dependent claims 2-9, 11-21, 23-24 and 26-30.

Claim 2 recites the limitations: "processing noise energy in the wireless medium while no packets are being transmitted" and "DC feedback control loop comprising adding opposite polarity DC to the receive signal to reduce DC level of the receive signal until the measurement of the window is no longer saturated".

Claim 5 recites the limitation "processing noise energy in the wireless medium while no packets are being transmitted".

Claim 11 recites the limitation "operating the DC feedback control loop to control the DC level of the receive signal comprises controlling the DC level within a predetermined maximum DC level."

Claim 12 recites the limitation "ADC having a sufficient range to maintain signal integrity without covering a total potential signal range of the receive signal".

Claim 23 recites the limitation "holding the gain feedback control loop at the retrieved gain level value during the predetermined quiet period."

Claim 24 recites the limitation "prior to transmitting a packet, storing a DC value of the DC feedback control loop."

Claim 26 recites "storing a gain value is performed while no packets are being transmitted". Claim 27 recites "storing a DC value of the DC feedback control loop prior to said detecting a packet being transmitted." Claim 28 recites "releasing the gain feedback control loop after the predetermined quiet period to operate in a normal mode." Claim 29 recites "if the DC feedback control loop converges within the

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predetermined period, operating the DC feedback control loop and the gain feedback control loop in a normal mode” and claim 30 recites “determining that the wireless medium is busy if the DC feedback control loop does not converge to a stable DC level within a predetermined period of time”.

Claim^S 3-4, 6-9 and 13-21 are dependent of claims 2, 5 and 12, respectively.

Kozak teaches adjusting the power gain of the system during a packet/noise period transition (See Col. 2, lines 11-14 and 19-26). Further, Kozak teaches adjusting the power gain by incorporating hysteresis in the feedback loop.

However, Kozak does not teach processing the noise energy while “no packets are being transmitted” and does not teach or suggest reducing the DC level of the receive signal by adding “opposite polarity”. In addition, Kozak does not teach controlling the DC of a receive signal within a predetermined maximum DC level nor an ADC capable of maintaining signal integrity without covering total potential signal range of the receive signal. Further, Kozak does not teach any processes being performed (i.e. storing, transmitting) during a period in which packets are not transmitted or determining operation the condition of the transmission medium based on the convergence or not convergence of a “DC feedback control loop”.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Pace et al. (US 5,471,665) teaches a differential DC offset compensation circuit.

Luz et al. (US 6,321,073) teaches a radiotelephone receiver and method with improved dynamic range and DC offset correction.

Wheatley, III (US 5,732,341) teaches a method and apparatus for increasing receiver immunity to interference.

Wilson et al. (US 5,617,060) teaches a method and apparatus for automatic gain control and DC offset cancellation in quadrature receiver.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marie C. Ubiles whose telephone number is (571)272-7491. The examiner can normally be reached on 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar can be reached on (571) 272-7488. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

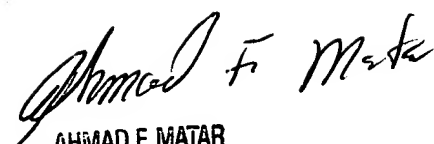
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March 20, 2005.


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